

- 4 -

REMARKS

Claims 1-7 are pending herein. Claim 1 has been amended as supported by Fig. 1 of the present application. Attached hereto as page 8, pursuant to Rule 1.121(c)(1)(ii), is a marked-up version of the amended claim. New claims 6 and 7 are added hereby.

1. Claims 1 and 2 were rejected under §102(b) over Nakashima et al. (U.S. Patent No. 4,700,177). This rejection is respectfully traversed.

The present invention relates to a piezoelectric/electrostrictive (P/E) device. With reference to Fig. 1 of the present application, claim 1 recites that a pair of mutually opposing metal thin plate sections 12a and 12b are supported by a fixation section 14. One or more P/E elements 20a and 20b are arranged on at least one thin plate section. Claim 1 has been amended to recite that the P/E elements are of the unimorph type. That is, the P/E layers are formed on only one surface of the thin plate sections. An object 18 is attached to forward end portions 32a and 32b of the thin plate sections. An areal size of a surface of the object 18 interposed between the thin plate section is larger than an areal size of object attachment surfaces 34a and 34b of the thin plate sections.

Nakashima discloses a sound generating apparatus using piezoelectric elements. With reference to Fig. 10 of Nakashima, the sound generating apparatus includes first and second disc-shaped sounding plates 33 and 34, respectively. A synthetic resin ring 37 is provided on the outer circumferential edge of each of the disc-shaped sounding plates (i.e., resin ring 37 extends all the way around the outer circumferential edges of the sounding plates, which is shown more clearly in Fig. 4). The synthetic resin ring is employed to attach one portion of the sounding plates to housing 44 while allowing the remaining, free portions of the sounding plates to vibrate within the housing.

- 5 -

Nakashima's disc-shaped resin ring is not attached to a forward end portion of either of the sounding plates because a disc-shaped object does not have forward ends. Since Nakashima's resin ring extends all the way around the outer circumferential edges of the sounding plates, the resin ring cannot be attached to forward end portions of the sounding plates. As explained above, original claim 1 recites that an object is attached to forward end portions of the pair of thin plate sections. Consequently, Nakashima fails to disclose or suggest the "attached to forward end portions" feature of claim 1.

Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 2 under §102(b) over Nakashima et al. are respectfully requested.

In addition, Nakashima clearly fails to disclose the features of new claim 6. New claim 6, which depends from claim 1, recites that an object is attached to *only* forward end portions of the pair of thin plate sections. Even if the outer circumferential edges of the sounding plates were to be characterized as end portions (Applicants do not agree with this position), Nakashima's resin ring would still surround the entire outer circumferential edges of the sounding plates, and not be positioned *only* on forward end portions of the sounding plates, as recited in new claim 6. Accordingly, at least claim 6 should also be indicated as allowable.

2. Claims 1-3 were rejected under §102(b) over Aoki (JP 2-119278). To the extent that this rejection might be applied against amended claim 1, it is respectfully traversed. Aoki discloses a bimorph-type piezoelectric actuator. With reference to Figs. 2 and 4 of Aoki, active piezoelectric elements 10 are positioned on upper and lower surfaces of a common electrode 9. As explained above, amended claim 1 recites that one or more *unimorph* P/E elements are arranged on at least one thin plate section of the pair of thin plate

- 6 -

sections. Consequently, the bimorph structure disclosed in Aoki fails to disclose or suggest the "unimorph P/E elements" feature of amended claim 1.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-3 under §102(b) over Aoki are respectfully requested.

In addition, Aoki clearly fails to disclose or suggest the subject matter of new claim 7. As is clearly shown in the drawings in Aoki, the P/E operating portions (i.e., the portions in which a P/E layer is sandwiched between electrodes) of piezoelectric elements 10 do not extend onto any portion of fixation section 13. New claim 7, which depends from claim 1, recites that a P/E operating portion is defined between opposed electrodes and extends from the fixation section onto at least a portion of at least one of the thin plate sections. Extending a portion of the P/E operating portion over the fixation section is important because it provides an anchor which facilitates greater displacement of the movable section (page 18, line 22--page 19, line 4 of the present application). Accordingly, at least new claim 7 should also be indicated as allowable.

3. Claim 1 was rejected under §102(e) over Miyazoe et al. (U.S. Patent No. 6,267,146). To the extent that this rejection might be applied against amended claim 1, it is respectfully traversed.

Miyazoe discloses a piezoelectric valve. With reference to Fig. 8 of Miyazoe, the piezoelectric valve includes first and second diaphragms 222 and 224, respectively. A gasket 216 includes a support portion 218 having sandwiching portion 220 interposed between each of the diaphragms (col. 9, lines 41-52). Piezoelectric elements 226a-226b are positioned on the first and second diaphragms and operate to displace the diaphragms, which allows for a fluid to flow through valve seats 236 and 238 into discharge ports 244 and 246.

- 7 -

There is no "object attached to forward end portions" of the diaphragms in Miyazoe et al., since both ends are fixed in place. For example, both sandwiching portions 220 operate as fixation sections that allow the central region of the valve to flex. Therefore, Miyazoe fails to disclose or suggest that an object can be attached to forward end sections of a pair of thin plate sections, as recited in claim 1.

Accordingly, reconsideration and withdrawal of the rejection of claim 1 under §102(e) over Miyazoe are respectfully requested.

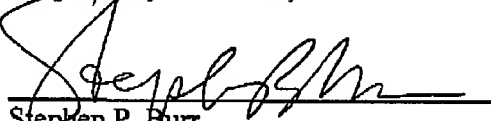
For all of the foregoing reasons, Applicants respectfully submit that all pending claims herein are in condition for allowance. Accordingly, the Examiner is requested to issue a Notice of Allowance for this application in due course.

The Examiner's attention is drawn to the IDS filed February 6, 2002 and the Identification of Copending Application filed March 20, 2002. Written confirmation that these documents have been considered is respectfully requested.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,


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March 22, 2002

Date

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